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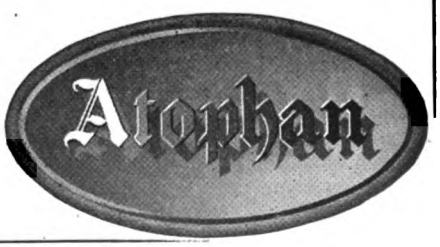

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Western Medical Times

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The Diagnosis of the Invasion of the Posterior Urethra in Gonorrhea.

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In the treatment of gonorrhea, it is absolutely essential to know if the anterior urethra alone is involved, or also the posterior urethra and parts beyond. When gonorrhea is treated by the method of intravesical irrigation, however, the diagnosis of involvement of the posterior uretha is not so important from purely a *practical* standpoint, as the *entire* urethra is irrigated and treated even though the anterior urethra alone is involved. In fact, this constitutes one of the chief merits of this method of treatment. Those who treat acute anterior gonorrhea by injections into the anterior urethra alone, however, must discover as soon as possible if the infection has extended beyond the cut-off muscle, for it is obvious that their treatment must be altered if it has, as anterior irrigation can certainly have no influence upon gonococci or pus in the posterior urethra.

Again, any writer publishing statistics about his method of treating gonorrhea and its complication, must state by what method he determines if the infection has gone beyond the anterior urethra. It is obvious that the writer who makes a diagnosis of posterior urethritis, only when there are present *clinical* symptoms of posterior involvement (frequency of urination, tenesmus, etc.) will not report a large percentage of this complication, as it is only the very bad cases which present these phenomena. It cannot be stated too emphatically, however, that during the course of an acute gonorrhea, the posterior urethra may become involved *without presenting any clinical symptoms.* The statistics and deductions of such a writer as to his particular method of treatment are of little value.

I shall not discuss some of the older tests, such as the two and three glass tests, as these are universally conceded to be unreliable. There are several other tests which possess certain advantages but are also not reliable. I do not desire to unduly lengthen this paper by a discussion of every test ever devised to differentiate discharges coming from the anterior urethra from those of the posterior urethra, but shall limit my discussion to two types of tests. Finally, I shall describe a modified test which I have employed for many years, which I believe to be both simple and reliable, because it overcomes some of the objections in the older tests. I might mention in passing that Pedersen (1) has presented a seven glass test, but a reading of his description of it will show that it is decidedly unpractical for the general practitioner.

The Kollman Five Glass Test is described by Leedham-Green (2) as follows:

"The principle of the procedure is

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to thoroughly cleanse the anterior urethra, and then to allow the patient to urinate into three glasses. A catheter of hard rubber with the eye close to the end is passed into the bulbous urethra, and with this, using a 6-ounce syringe, the anterior urethra is thoroughly washed out, and the washing collected in the first urine glass. The irrigation is carried on until the escaping fluid of the last irrigation is free from shreds and mucus. When it is certain that all shreds have been removed from the anterior urethra, the fluid of the last irrigation is collected in the second urine glass, the so-called 'control glass'. The patient then micturates successively into three glasses—viz., Nos. 3, 4 and 5."

The test is interpreted as follows: Glass 1, contains the pus or shreds from the anterior urethra; Glass 2, is the 'control' showing that the entire anterior urethra has been washed out thoroughly. Glass 3, contains pus from the posterior urethra; Glass 4, from the bladder; Glass 5, represents the last bladder urine, together with such pus and detritus squeezed out of the prostatic follicles. The Kollman test can, of course, be combined with massage of the prostate.

Wolbarst (3) describes his test as follows:

"For the irrigation of the anterior urethra, I prefer a small glass syringe holding about one ounce. The patient lies on an examining table, with a measuring glass (capacity up to sixteen ounces) lying snugly between the legs. From four to six ounces of irrigating fluid are usually sufficient to thoroughly empty the anterior urethra of its inflammatory products in the average case of chronic urethritis. The washings are gathered in the measuring glass and thence transferred to a glass which we designate as glass 1. A second washing determines the fact that the urethra is absolutely clean, so far as the anterior portion is concerned. These washings are poured into a second glass, which is the control. A sterile soft catheter of small calibre is now introduced into the bladder, and about one ounce of urine withdrawn into glass 3. This is the bladder urine. If this urine is clear and sparkling, we know that the bladder and the upper urinary tract are normal; the catheter is withdrawn and the patient voids about an ounce of urine into glass 4. Now, if this urine has been voided over a normal prostatic urethra, this glass will contain clear urine; if, however, the posterior urethra contains pus or shreds, they must be found in this glass, inasmuch as the anterior urethra has been washed clean, and the bladder urine has been proven clear. It will thus be seen that this test gives us the washings of the anterior urethra, posterior urethra, and bladder in a most unmistakable manner.

"When, however, the urine drawn from the bladder through the catheter is not clear, but contains pus or shreds, we are unable to say whether these inflammatory products originate in the bladder or upper urinary tract, or have regurgitated backward into the bladder from the prostatic urethra. This question can be answered quite easily by this test. The catheter remaining in situ, the bladder urine is drawn off (glass 3), leaving the bladder empty. The viscus is now thoroughly irrigated through the catheter, until the washings come out clear. Then four to six ounces of warm sterile water or boric solution are injected into the bladder and the catheter withdrawn. The bladder now contains four to six ounces of clear fluid and all its inflammatory products have been removed. The patient voids into a glass (glass 4). If the water just passed into glass 4 is clear, we are certain that the prostatic urethra is not diseased, and the pus in glass 3 must have come from the bladder or kidneys; if, on the contrary, this water contains pus or shreds, we have positive evidence that these inflammatory products have not come from the bladder nor from the anterior urethra;

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hence they must have come from the deep or posterior urethra.

"Now, if it is desired to study the massaged prostato-vesicular secretion, the prostate and vesicles are vigorously massaged, as in Jadassohn's test, and the patient voids the balance of the bladder contents into still another glass (glass 5). This gives us accurate information concerning the prostate and seminal vesicles as revealed by massage."

In the description of the tests just mentioned, we will notice that there is at least one serious error to which they are liable as well as several important omissions which are not stated in their description, and which, if not known, would seriously invalidate their value.

The theory upon which the Kollmann, as well as the Wolbarst and indeed most tests of similar nature rest, is the thorough washing out of the anterior urethra, and the anterior urethra alone and nothing more. It is obvious that if the anterior urethra is not completely washed out, the test is useless, as we cannot then positively state that the shreds found in the urine come exclusively from the pesterior urethra. Again, if while washing out the anterior urethra, we inadvertently let some of the fluid go past the cut-off muscle into the posterior urethra and thus wash it out also, the test will again be useless, as the absence of shreds in the urine will not prove that the posterior urethra is not infected, as its secretion has been washed away during the supposed anterior irrigation. Any test, therefore, for the diagnosis of infection of the posterior urethra, must consist of a thorough cleansing of the anterior urethra, and of the anterior urethra alone.

In the description of both these tests we simply find it stated that the anterior urethra is washed out until the return fluid is clear. The serious omission is that the description fails to state whether warm or cold solution is used for this purpose. Anyone not experienced in urethral irrigation would naturally employ warm or hot solution. This would be a serious error as either warm or hot solution would soon, even under low pressure, cause a relaxation of the cut-off muscle, in which case we would inadvertently wash out the posterior urethra also and thus invalidate the test. The first point to be remembered therefore is to use cold solution, in order to cause a spasm or more firm contraction of the cut-off muscle, thus effectually shutting off the posterior urethra.

Another important practical point in making these tests which I have never seen discussed is the following: Many patients, while under treatment for gonorrhea, are taking some alkaline diuretic or other blenorrhagic prescription internally. A good many of these remedies have the effect of rendering the urine cloudy and more or less opaque. It is often difficult or impossible at times to look through such urine to determine the presence of minute shreds or threads. It is therefore very important when making such a test to have the patient refrain from taking any of these medicines as well as certain alkaline mineral waters for two days previously.

But there is one very serious error in the technique of the Kollmann test, and that is the washing out of the anterior urethra with a catheter. Any such washing is absolutely unreliable. In the first place, the urethra is not distended as the fluid passes out at the meatus almost as fast as it goes in. This difficulty can be eliminated to a certain extent at least, by compressing the lips of the meatus from time to time. But the more serious disadvantage is, that no matter how close the eye of the catheter is to the end of the instrument, there will always be a certain portion of the anterior urethra beyond the eye of the catheter which will not be affected by the irrigation fluid. With a method I shall presently describe, I have numerous times practically proven the unreliability of washing out the anterior urethra with a cath-

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eter. I have had my assistant wash out the anterior urethra with a catheter until the washings were perfectly clear, then I washed it out with my own method, and easily demonstrated in many cases numerous shreds still present which were not removed by the catheter irrigation.

Coming now to the Wolbarst test, we find that it differs from the Kollmann test only in differentiating the discharge of the posterior urethra from that of the bladder. The anterior urethra is washed out just as the Kollmann test till it is considered clean, then a catheter is introduced into the bladder, its urine drawn off and inspected. The bladder is then washed out till the washing comes away clear and then eight ounces of clear fluid is left in the bladder, the catheter is withdrawn and the patient voids this fluid. Any shreds in this fluid, according to the author, must have come from the pasterior urethra, as the anterior urethra and bladder have been washed clean.

I will admit that inasmuch as the bladder and anterior urethra are clean, that whatever shreds are voided with the bladder fluid must have come from the posterior urethra, but will show that this test is not reliable except in cases of marked posterior urethritis with the production of much pus.

Let us for this purpose briefly consider the anatomy and physiology of the posterior urethra and bladder. (Fig. 1.) Passing from within outwards and about the junction of the bladder and posterior urethra, there is an ill-defined ring of muscular fibers, the internal vesical sphincter. Within the prostate, but a little further away from the bladder and separated from the internal sphincter by some glandular tissue, there is a more powerful ring of muscular fibers, the external vesical sphincter. Just where the urethra leaves the apex of the prostate, it is surrounded by a thick layer of muscular fibers, the compressor urethrae muscle.

The older writers believed that when the bladder became distended, the weak internal vesical sphincter yielded, and the bladder and posterior urethra became one cavity closed by the external vesical sphincter and compressor urethrae muscle. It has been definitely proven, however, that this is not the cor-

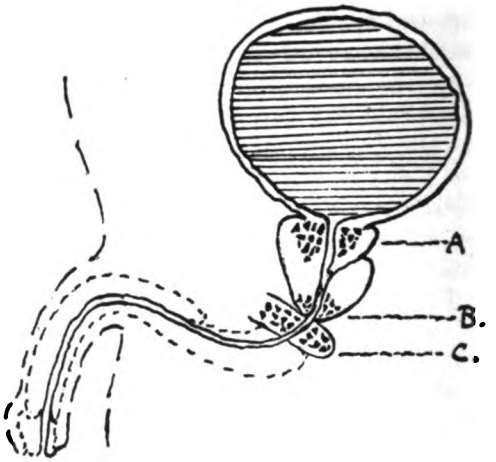

Fig. 1. (after Leedham-Green).
A. Internal Vesical Sphincter; B. External Vesical Sphincter; C. Compressor Urethrae.

rect interpretation of the act of urination. More especially since we have been able to take radiograms of the bladder filled with argyrol or other fluids in various degrees of distension, it has been shown that the internal vesical sphincter is strong enough to close the bladder even when fully distended, and there is no such thing as the taking in of the posterior urethra with the general vesical cavity during complete vesical distension. It has also been definitely settled that the compressor urethrae muscle is exceedingly powerful, and will not allow any fluid to get from the posterior urethra into the anterior urethra, or vice versa, as long as it is contracted. Leedham-Green expresses himself as follows: "Therefore, if pus or blood be present in the urethra behind the compressor muscle, the fluid will tend to pass backwards into the bladder rather than forwards towards the meatus." We thus see the possibility while washing

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out the bladder with a catheter of also washing out the posterior urethra, because of the two boundaries of the posterior urethra (i. e., the internal vesical sphincter and the external vesical sphincter plus the compressor urethrae muscle) the internal sphincter is far the weaker of the two. We thus see that if the posterior urethra becomes too distended with pus, this pus would much more likely find its way into the bladder than in the anterior urethra, and would thus be washed away with the bladder irrigation. Again, if there should be only a slight posterior urethritis with the production of only a small amount of pus, we can easily see how the catheter, in working its way through the posterior urethra into the bladder could carry with it all the pus of the posterior urethra into the bladder and would be removed while the latter organ is being washed out, so that here again, no pus would be diagnosed, although a posterior urethritis is actually present. We would thus, with this test, in our statistics get a much smaller percentage of cases of posterior urethritis than is usually present. Or, in other words, in any given case, a posterior urethritis might be present without its being demonstrated by the Wolbarst test. The test, therefore, is only of value if positive, but a negative finding is not proof of the non-existence of a posterior urethritis.

There is still another and very serious objection to this test. I do not consider it advisable, in fact, I consider it harmful to pass a catheter through an acutely inflammed infected anterior urethra into the posterior urethra and bladder. It might be argued that this test should not be made during the acute stage of the disease, but only later on, in the subacute acute or chronic stage. If such is the case then the usefulness of the test is very much limited. As previously stated, the posterior urethra may become involved very *early* in the disease, even within the first week, and it is highly important to look for it early as well as late. The mere fact of washing out the anterior urethra till the washings are clear, does not by any means clear it of infection, for, if such were the case the treatment of anterior urethritis would be a simple matter indeed. Moreover, if a patient presents himself with an anterior urethritis but with a history of having had one or more attacks before, it is very important to know if there also exists any posterior involvement from the previous attacks.

Let us now consider what, after all, is the supposed advantage of the Wolbarst test as compared to the modified Kollmann test. The only difference, as previously pointed out, is that it attempts to separate the secretions of the posterior urethra from those of the bladder. As stated before, I doubt very much if it does, but even if it did, I do not see any particular advantage in it. It cannot be too strongly emphasized that gonorrheal cystitis, except that portion of the base adjacent to the posterior urethra, the so-called bladder neck, which might really be considered part of the posterior urethra, is of extreme rarity. True, here and there, we find reported as medical curiosities even cases of gonorrhea of the ureter and kidney, but such extreme rare cases can have no bearing upon the subject. *Practically* speaking, especially for purposes of treatment, it is of the highest importance to know if the infection has gone beyond the cut-off muscle, but of very little importance, if of any, to know if the infection takes in only the posterior urethra or also the bladder neck. I believe the chief reason why this test was ever devised, was because, in making the ordinary Kollmann test in gonorrhoics, we are often confronted with thick opaque urine, due to various drugs which the patients are taking, and in which it is often impossible to recognize small threads or shreds. We often feel that we could tell a good deal more

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if the urine were clear, or if we could substiute distilled water for bladder urine. But most of this turbidity can be avoided by having the patient refrain from taking any drug which causes turbidity, for two days before making the test.

The test which I am now going to describe, and which has given me complete satisfaction both in dispensary and private practice, contains nothing new or original. It is simply a combination of the old Kollmann test and the Lohnstein test shorn of all the disadvantages which are usually found in a description of these tests. It is performed as follows:

All internal medication is stopped for a day or two, and the patient is also instructed to refrain from asparagus, certain alkaline mineral waters or anything that might cause turbidity in the urine. The patient then presents himself after not having urinated all night. I then fill up my irrigator with an ice cold ½% solution of postassium ferrocyanid, having the irrigator about 30 inches above the level of the penis, and proceed as for intravesical irrigation. I

Fig. 2s

employ the special nozzle (Fig. 2) which I have described in a previous publication (4) and let the solution run into the anterior urethra. On account of the coldness of the solution causing a more tonic contraction of the cut-off muscle, as well as the very slight elevation of the irrigator as compared with intravesical irrigation, the solution does not go beyond the cut-off muscle and washes out the anterior urethra only. Moreover, by this method, we more fully distend the anterior urethra and more thoroughly rid it of its secretions. A clean pus basin is held under the penis to catch the washings, and from time to time this emptied into clean urine glasses and the presence or absence of shreds noted. As soon as the anterior urethra is thoroughly clean, as shown by the washings in the last glass, the patient is allowed to urinate into a clean glass. Any shred therein must have come from beyond the cut-off muscle as the anterior urethra has been washed clean. In order to control this test, to see that while washing out the anterior urethra we have not inadvertently let our solution get beyond the cut-off muscle, we add a few drops of ferric chloride solution to all the glasses. The ferric chloride solution forms an intense blue color when coming in contact with even a weak solution of potassium ferrocyanid. The first glasses containing the washings from the anterior urethra are immediately turned blue, and, if any of the solution used to wash out the anterior urethra should have gotten beyond the cut-off muscle, then the last glass containing the bladder urine plus the secretions from the posterior urethra would also turn blue. This, however, never happens if the test is performed as described above. Of course, we may combine with this test as with other test, massage of the prostate and expression of the contents of the seminal vesicles.

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The Value of the "No Good"—The Symptoms of Varicose Veins—Continued.

FORTY-SEVENTH PAPER

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Dolor is a classical symptom, but in this case it will be best to consider it as embracing both pain and tenderness. Varicose veins may be painful because of tension, or because of periphlebitis, with nerve involvement in that inflammation, therefore, neuritis itself is not at all uncommon, inasmuch as the connection of nerve with vein, or with vein sheath, is very close. Especially in the case of leg veins, which appear to connect with the same set of nerves more than once. Placing the heel of a patient against ones knee and then with pressure of ones hand upon the toes endeavoring to extend the foot until it lies in the same place as the leg will often produce a painful sensation somewhere on the inner side of the corresponding leg. While, having the patient hold his knee rigid during the time that his toes are being pressed upon in a contrary direction with the idea of forced flexion of the foot, will now and then produce a pain somewhere in the middle of the calf of the same leg, or, in other words, will give rise to tenderness along the course of the external saphenous. Pain and tenderness may be felt at some limited area or it may be that the area may be wide and diffused. Distension of the vein often furnishes the symptom known as sciatica, either of the great or of the small sciatic nerve. When pain accompanies distension of the vein, with its consequent pressure on the nerve, then manual pressure upon the painful spot will relieve the symptom, provided that the pressure is applied in such a manner as to diminish the globular or other distension of that vein, without regard to the nerve itself. If, on the other hand, the pain results from the weight, drag or pull of a sagging vein, in the case of the internal saphenous for instance, then lying on the back, with elevation of the leg, will ease the pull, will empty that vein and will relieve the pain which pressure alone may fail to do. It is true that a proper bandage will afford some ease, not from its constriction alone so much as from its support, which is combined with accessory hyperemia.

Just at this point in the discourse it might be well to state some varied conditions of veins that have given rise to discussions as to whether dilation is palsy or atony. It probably is the latter, for prolonged distension or distortion, or both combined, may be sure origins of more or less profound nutritive disturbances; though, no matter how badly a vein is distended or distorted, it seems to have the power of contraction, if it be but emptied and be kept empty by position, or by any other means that will give it a chance to demonstrate its contractility. As the veins are supplied with nerves they may become paralyzed, but the writer has no evidence that they ever do so, unless it might be in a case where a whole limb was entirely paralyzed, with every structure in it undergoing atrophy, though even in one such patient the veins and arteries appeared to perform their work all right, no matter what the rest of that leg was doing. That condition of varicose veins within varicose the veins, that is caused by the vasa vasorum becoming varicose with the vessel which they supply, is not at all rare; the sinuses of the head, cased with the skull, would form a good schema of the condition, if the skull were imagined as elastic.

In a way the veins are, in places, an-

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alogous to the caput coli, in that the predominant musclar fibers are longitudinal, as are the elastic fibers. Perhaps this arrangement is back of the clinical manifestation, that while circular constricting strips of adhesive plaster do have a very definite value, yet that value is increased manifold if additional and longitudinal strips or reinforcements are also employed. Some such condition of affairs has led to the usage of splints that are adapted to the purpose and either run parallel to the vein on either side or press directly upon it, as may be deemed advisable to the physician, or found most comfortable to the patient. Experience will bring skill in this as in other matters.

In these days of a widespread use of rubber for hose and tires, it is hardly necessary to state the well known fact that intermittent impluse will transport more fluid through an elastic tube than constant pressure of equal intensity will cause to flow through the same tube. Also, it is scarcely necessary to insist that about the very worst thing that can happen to any elastic tube is to have matters so arranged that the tube wall stands still with its elasticity at rest or in abeyance. It follows, according to the natural law of such things, that the more a vein becomes dilated and passive, the greater its atony is bound to become. Perhaps those veins with an internal longitudinal, a middle circular and any muscular fibers, e. g., the popliteal, are those that preserve their elasticity the best and longest. At least, varicosities of the popliteal vein are rare indeed.

The superficial veins of the leg must rely upon two counter forces for that muscular pumping pressure which is generally considered so closely connected with the onward movement of venous flow. Manifestly, when the muscles of the leg are active, they, like other muscles, swell or enlarge their bodies. If this enlargement acts against a very expansible or elastic skin, a counter pressure is established, so that vein contents will be forced onward; but if that skin is but a loose inelastic covering for the deeper structures, then the propulsive effect initiated by the muscular contraction is lost. Consequently, after a long stage of edema or adiposity, when those conditions have passed, it will be found that the superficial veins are in a varicose or stretched state. Should a vein cross a bone, so that there is no question of any muscular action, but only a rigid support, without the ability or possibility of acting as a compressor in that particular spot, there the vein is very liable to become varicose. Such enlarged veins may be often found crossing the crest of the tibia, which crest frequently appears to be very tender at the point of crossing, even though it may not be elsewhere sensitive.

One little matter might be mentioned as having proved a puzzle to some physicians, which matter is that every once in a while some patient with sciatica of the left leg is relieved of his pains by an enema of deci-normal salt solution, or by any other enema, so that it be hot, or by the administration of a purgative, or by the expedient known as a purgative tampon. In such a case the actinogram will serve to demonstrate that the colon is overloaded, either through atony or through sharp angulations, in or below the sigmoid, so that the venous flow of the leg is interferred with by intra-abdominal conditions; the result of which is that the internal spahenous is dilated. Therefore, one or the other or both sciatics are pressed upon and resent the fact. Such a condition may not be appreciated, if inspection is solely depended upon as a means of diagnosis. Therefore an observer should depend much more on his sense of touch than on his vision; for it is questionable, in the writer's opinion, whether a blind observer with an educated touch would not prove more than a match as a diagnostician for anyone who, though in full possession of his senses, relied solely on sight. At any rate, phlebolithes and similar matters may be readily discovered by touch, even though they are small and inconspicuous, so as not to arrest the attention of the eye.

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Here and there may be felt an opening in the skin that may be roughly likened to a fontanel, with a sort of knuckle of vein coming directly up in the center of it. These are quite common, though often unrecognized in instances where the varicosities have commenced in the deeper veins; when they later extended to the superficial ones. Such openings or areas should be deemed worthy of our very first attention in the matter of treatment, because it will be found upon trial that an attack upon such an area will be followed by a rather widespread, if unforetold, improvement. This may even extend to locations that are apparently not connected with the point of attack. The writer is of the opinion that these pseudo fontanels are due to absorption of the skin elements through pressure that is furnished by the dilated venous knuckle, so that some of the layers of skin are absorbed and penetrated from the deep to the superficial layers; which latter are pushed up or elevated by the dilated vein beneath them. Such a vein may be contracted or pushed down with the observant finger, which enters a well marked hole or depression, the limiting wall of which may be readily felt in any well marked instance, though inspection by the eye alone would miss taking note of the true state of the case. Many other interesting statements may be found in the textbooks of the day, therefore they need not detain us here.

The economics of the matter rest largely upon the symptom known as fatigue. This question has been worked out by industrial engineers until answering has become both an art and a science. In the first place, the man with varicose veins is excluded, by the mere fact of his possession of such veins, from certain governmental, state and municipal positions. The medical examiner is not asked his opinion of the applicant's ability or condition or fitness for the work under consideration. The question is, "has the applicant varicose veins?" The examiner has no option, save only that for certain positions or under certain conditions an affirmative answer is a positive bar to the thing sought. On the other hand, a negative answer may or may not admit. To a lesser extent, perhaps, but to that is becoming more and more widespread, the patient or applicant is barred from various large industrial plants where the industrial engineer is quite as strict or has even less option than the medical examiner. One common rule is "whether a sub-assembly has ten or one hundred or five hundred pieces, the one part that needs to be watched is that which has the longest cumulative operation time, or the one that is the slowest moving part." (*Knoeppel's Graphic Production*). Apply this rule to the present instance. The patient may have any number of perfect parts that are capable of long continued and rapid movements; but attention should be focused on the slowest moving part which, let us say, is the left leg. If the applicant wishes to engage in office work, or no matter what duties he may wish to assume, he is handicapped by that left leg or its enlarged veins. It only remains to determine the amount of the handicap. Money must be paid for his transportation. Other people must fix and carry additional burdens to make up for his deficiency. Arrangements must be made for him; but always with that leg in mind. The industrial engineer, in estimating whether such a condition of trouble is worth while, will surely take but one position and that is, "so long as a job or business operation is up to or ahead of its schedule, costs are bound to be within limits. Where the work, *for any reason*, falls behind schedule, that is where losses occur." In this particular case, to attain equivalents is something that the workman is responsible for. It is inefficient. Whether the man can help himself or not makes no difference in the final result; that is inefficiency . Efficiency is the product. The sum is that man, machinery and management, mutiplied together, must give plant efficiency.

How much is the man with varicose veins handicapped? Always five per cent.; but this amount, under stress and

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strain, will increase to something like seventy-five per cent. The body has but a certain amount of force or vigor. Varicose veins of any size can easily handicap circulation to a five per cent amount, so that every working hour the man under consideration is expending say five per cent, of his energy in overcoming the deficiency of his circulation. More than that, whatever the present amount of inefficiency is for that man, his efficiency will become less as time goes on. There may be handicaps that one may overcome; this one is progressive, therefore, suppose the man be considered pretty fair or average just now, if so he is at his best so that he will never be any better. If he is ambitious and pushes himself by mental force his veins will dilate still more, so that the man goes the quicker to the scrap-heap. Under modern, or rather under future conditions that are upon us, as exemplified by systems of industrial engineering, every man piece of machinery makes a record, therefore, the man who carries around varicose veins shows that he is coming short every day. Perhaps there was a time when he could "sojer" through his work and escape the eyes of the more or less tolerant boss. Not so today. Because if sojering were possible or permitted, then that boss's record would show his own inefficiency. Perhaps at first glance it might be considered that men were treated like machines in modern plants. Well so be it. This is only what is known as coordination, for even in former days it was asserted that machines were well cared for, no matter what happened to the men. The idea at the present time is to take perfect care of both machines and men, for unless both are in perfect condition co-ordination is impossible. Yet the wages of labor are so high that without co-ordination labor cannot possibly earn the equivalent of its wages; in other words, the schedule fails. If a man is dragging a leg or working against the handicap of pain or fatigue, or both, co-ordination fails, whether in the machine shop or in the man's body. If an operation could be performed on a varicose leg so that the patient could be cured; both operation and cure might be accomplished facts before the owner of the leg started taking part in some industry. But at the present time the operation takes much time for recovery. Time spent in hospital and in bed. Yet which time too often proves but a makeshift, so that a year or two after that operation the condition of the patient is but obvious proof that the operation might just as well not have been done, for all the real benefit obtained. If the man has been earnestly and industriously at work it is quite possible that his condition may be worse than it was before the operation; so that the man is in doubt as to what he received as an equivalent for the time lost and the expenses undergone. He does know that his results have not been up to the preliminary schedule. Mentally, the man wants to sell his labor; physically, he cannot deliver the goods.

It is true that in former times a military surgeon only exempted a man from service for "large varicose veins." Small ones did not count at that time; only those that showed incompetence of their valves. At present, with the high cost of labor, the tendency is to regard any varicose vein as a possible source of trouble; for in industry the higher wages the more and the better must be the service rendered in order to even the additional outlay. So we may expect, at any time, the installation of an examination of workmen that will be quite as rigid, it not more so, as any military examination of any recruit that ever took place, as yet. Perhaps, too, the procedure known as medical discharge may become more and more common as graphic production registers reveal, with unremitting accuracy, the shortcomings of individual workmen. We are about to enter upon an industrial war, the great weapon to be employed is standardization. Standardization of men, of policies of plants and of products, therefore it behooves us to see that varicose veins are

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cured while they are small, so that they shall not become large. For the man with varicose veins is not a standard man and cannot be standardized. He is one who is below standard and to that extent he is inefficient. Why not forestall this inefficiency? The way to relieve a handicap is to do away with it, to prevent its becoming established. Consequently, the time of prevention is what might be termed the earliest possible date of attack. Thus insuring that the man be up to standard, because he was standardized in boyhood. He was standarized before his application, which is rather a different method from his medical discharge and the scrapheap.

Arm Complications Following Breast Amputations.

A Clinic at Park Hospital, New York City, April 1, 1920, by Robert T. Morris, F.A.C.S., New York.

Three years ago this patient forty-two years of age had an amputation of the right breast for carcinoma. She now comes to us with a greatly swollen right arm and with a neuritis of the arm so intense that she has acquired the morphine habit. How are we to avoid a complication of this sort at the time of operation for removal of the breast? The neuritis and the obstruction to the lymph and blood circulation are caused by axillary scar contraction. In a radical operation for removal of the breast where the pectoral muscles and axillary fat and glands are removed a contracting scar always involves the large blood and lymph vessels and nerves to a greater or lesser extent.

Some years ago Dr. C. E. Ruth of Iowa proposed that we spare the lesser pectoral muscle at the time of operation and then cutting it loose from rib attachments tuck the free end up into the axilla where it would serve for filling-in purposes, making a soft muscle pad. Murphy of Chicago suggested that we employ some major pectoral also for this purpose. Personally I am afraid to employ any of the major pectoral because Heidenhain showed that nests of epithelial tissue may be found in almost any part of the major pectoral muscle when there is carcinoma of the mammary gland present. The minor pectoral muscle, however, escapes this invasion excepting as a late complication, so late that operation of any sort would be of doubtful value.

Had this resource of turning the minor pectoral muscle into the axillary space been employed we presume that our patient would not have suffered the post-operative complications which are now so distressing. What are we to do about it? If we cut away the scar tissue from the axillary vessels and nerves there will be recontraction later. The operation will be of temporary value only. I shall use a pad of fat for filling in the axillary space and this fat graft, as large as three whole fingers of one hand, may be taken from any convenient part of the patient's body. A fat graft from some other individual would undergo rapid absorption and might not be accepted well anyway. It is important to obtain homogenous grafts so far as possible in any sort of grafting work because enzymes of the tissues of any one individual have a sort of specificity belonging to that individual.

Proceeding with the operation I divide a very hard scar which extends well into the axillary space and which as you observe has intimately involved the large vessels and nerves of this region. Having relieved these structures from the scar encroachment I now take my fat graft from the left breast of the patient, making an incision below the

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breast, turning the breast up and dissecting a good mass of fat away but not including mammary gland tissue. The fat graft is transferred at once into the right axillary space of the patient and the wounds sutured.

Is there any other means for relieving the greatly swollen right arm? Authorities differ somewhat on this point but this may be due to differences in technique. If we carry several strands of large silk into the swollen tissues below the shoulder and run them into the area of another lymphatic system, that of the neck, lymph will sometimes make its way along the buried silk threads which remain for a very long time without undergoing absorption. My method of inserting the silk thread, as you observe, is first to make a small stab wound through the skin in the neck, another stab two and one half inches below that point on the shoulder and another stab two and a half inches below the second one farther down on the arm. A needle carrying a strand of large silk is now entered at the upper puncture and drawn out of the one below. The needle is re-inserted in this puncture and again emerges at the lowest puncture. The silk thread is now cut away from points where it emerges at the upper and lowest punctures and the ends are tucked beneath the skin. All three skin punctures are sutured with small catgut. One may put in several rows of silk strands in this way but from three to six strands will commonly suffice, making a new series of punctures for each separate strand of silk.

Now that the operative work has been completed what else may we do in addition for the purpose of lessening the swelling of the right arm and the neuritis of its nerves? Gently applied massage after the wounds have healed will be very effective and we shall anticipate a marked improvement in our patient's condition in a case in which in former years we would not have known how to give relief. Prevention of this complication is the first step of importance in a case of this sort and that should always be kept in mind in breast amputation work.

Methods and Results of National Health Insurance in Great Britain and Ireland.

FREDERICK L. HOFFMAN,
Buffalo, New York.

Dr. Hoffman presented in brief outlines the results of an extended personal investigation in England, Scotland and Ireland, supplemented by inquiries in France, Holland, Belgium and the border states of Germany. in view of the magnitude of the subject, the speaker confined himself largely to the medical aspects of a question which in recent years has assumed national importance; but to no interest are the questions involved of greater importance than to the medical profession.

After stating the fundamental principles of the British legislation, which was adopted in 1911, the speaker emphasized the necessity of an active and whole-hearted co-operation on the part of the medical profession to make any compulsory system a measurable success; but this, he said, had not been forthcoming in either England or Germany. He dealt with the terms of remuneration and the present controversy, involving a very material increase, which is being made the subject of arbitration proceedings. He described in some detail the new medical benefit regulations, to some of which, also, strong objections are being raised, while others

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have been a matter of controversy for many years. The so-called panel system employs probably 14,000 doctors out of a total of 20,000 engaged in general practice. It is proposed to limit panel service to 3,000 names, which is objected to by the doctors but considered a very liberal allowance on the part of those familiar with the facts. The speaker described in detail the results of his personal investigations at offices of panel doctors, followed by personal visits to a number of homes of panel patients, and an inspection of a large number of original reports made by visitors and inspectors of approved societies. His conclusions were decidedly adverse to the value of such a system as a means of securing to wage-earners a really qualified method of medical attendance. The average time given to a case, he said, was less than five minutes, and the term "lightning diagnosis" has become practically universal. He also brought out the fact that large numbers of panel patients did not use the panel doctors, but in cases of serious illness, consulted, as heretofore, their own physician.

The speaker then dealt with the question of pharmaceutical practice, also subject to a panel system, totally at variance with the present methods practically universal throughout the world. In response to an urgent demand on the part of Insurance Committees and Approved Societies for the most urgent economy in prescribing, he said a system had been developed in which some 30.000,000 prescriptions were annually subjected to the utmost scrutiny by elaborate so-called Drug Pricing Bureaus, where every prescription was gone over and every ingredient was separately priced, with the result that many doctors were called before the Insurance Committees charged with over-prescribing, and frequently fined, sometimes heavily, on this account. For the purpose of facilitating lightning diagnosis, he said, the custom of prescribing stock medicines had assumed huge proportions in England, not being tolerated, however, in Scotland. Probably 80 per cent. of the total drugs prescribed would be represented, he said, by about 30 medicines, as a matter of simplicity and economy.

In a similar manner the approved societies, as well as the Insurance Committees made use of every opportunity of detecting malingering, with the result that an elaborate system of inspection and medical referees had come into existence, which was now about to be taken over by the State and made a Governmental function. The reports of medical referees disclosed a large amount of malingering or feigned sickness, which the speaker said must necessarily represent an enormous and needless labor loss. He was, therefore, of the opinion that in this respect also national health insurance had disclosed tendencies opposed to the best interests of the patient as well as to the drug trade, seriously in jeopardy on account of a demand for State control, or rather the assumption of the drug business by the Government. This, in fact, he said, had practically been done at the request of certain German sick funds, and was likely to be done in England in course of time.

He also called attention to the very limited list of appliances and surgical necessities permissible under the Act, and pointed out that, for illustration, trusses in connection with hernia, or eyeglasses in the case of defective vision, were not granted.

Restating his views, the speaker said that it was therefore safe to assert on the basis of the most trustworthy information that in its medical aspects the Act had been a failure and, even worse, had resulted in a divided profession, now perilously near to a trade union, chiefly concerned with questions of income and personal advantage rather than the interests of the patient and the progress of medicine as a healing art. In the same way, the speaker said, an immense harm had been done to the pharmaceuti-

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cal profession, which had also been reduced to a trade, with a continuous threat of strikes or the surrender of contracts, on the ground of inadequacy of compensation.

Finally, he said the evidence was overwhelming that malingering or feigned sickness had become the rule rather than the exception, although cases were difficult to detect on account of the obscurity of the diseases alleged. The foregoing conclusions, the speaker said, were amply supported from week to week by correspondence in the *British Medical Journal* and the *Lancet*, to some of the letters of which he made reference, proving conclusively a thoroughly dissatisfied and disorganized profession, with no promise of a successful settlement of an apparently hopeless confusion. It would, therefore, be a calamity, in the speaker's opinion, if such a system were established in the United States, where its urgency was infinitely less than in Europe, on account of the higher standard of life of our wage-earners and the larger surplus or margain of income over natural family expenditures. If, however, the health interests of the people required a drastic change, he was of the opinion that a much better solution would be found in a rational system of unemployment service on the one hand, and a thoroughly qualified medical service on the other. This would lead to real prevention of disease and not to certain disappointment on the part of those to whom great promises had been made but for whom little had been done by way of fulfillment. In behalf of the Medical Profession of America, than which none held a higher position anywhere in the world, he said it was the duty of every physician to oppose a propaganda largely of German origin and furthered and fostered by mis-statements and fallacies obviously opposed by an appeal to the truth.

Medical Unions Increasing in the United States.

GEO. H. TICHENOR, Jr., A.B., M.D.,
New Orleans, Louisianna.

The lay press informs us that in New York City certain physicians and nurses have formed labor unions and applied for admittance into the American Federation of Labor. The move follows closely upon the Pharmaceutic and Teachers' Union. It is natural that New York should be the first large American city to follow in the footsteps of the European physician, M. Spain, the Medical Union has won a victory under the leadership of Dr. Aranda, a distinguished surgeon. This influence upon the physicians and nurses over the country at large will be very great as New York has been and is one of our great medical centers.

The American physician has been imposed upon, not only by his so-called leaders, but also by the large employer and his pensioners; therefore, it is not surprising that the "worm has turned."

The medical colleges have found that they can give the A. B. or B. S. Degrees along with the Medical Degree in six years instead of eight and we have considerable clamor from certain sources as to the length of time required—it was especially evident during the war, and one state passed a law requiring the applicants to have a "fair education." and examines its applicants for license as they pass the branches at college—a fine "drawing card." Mid-wives, opticians and any fadists have easy sailing in obtaining a right to practice the same thing the qualified physician has the greatest difficulty in obtaining and still greater difficulty, if he desires a reciprocity of license with another state. Various religions and

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corporations are working the doctor for their benefit at starvation wages, not only in public, but private hospitals. We have laws against doctors taking benevolent associations and doing contract work, which are not enforced and there seemingly is no intention to even try to stop same. Why should they? We have not the honor of directly electing them.

How has this been brought about? By the systematic training the doctor receives. The Chinese mandarin wishing to keep the "Chink" in bondage made a religion for him, Confucianism. "I see no evil, hear no evil, I speak no evil." A good thing for the fellow who is born to ride the other fellow's back. Kaiser Bill of Germany did the same thing when he made Lutheranism conform to the Imperial Autocracy's desires. In fact, all religions more or less have been perverted to suit the ambitions of the ruling caste of the country in which they are established and medicine has, to a large extent, been compelled to obey the dictates of the clergy and serve its purposes. The English physician has been laboring under a glittering goldbrick system of state medicine which has been beneficial to the aristocracy and pauperizing to the profession and is now rebelling against same. The same system is advocated by what is called the censored or controlled press for us, which would be of great financial benefit for our aristocracy. However, the employer is not worrying especially about what you call the system. We are doing the same thing now in this country for his benefit as our confreres in England.

A friend of mine has asked me how are you going to remedy it. My answer is, if medicine can be socialized by a *few men* for the benefit of the employing class, as it is at present, it is logical to assume it can be socialized for the benefit of the profession itself by co-operation. We co-operate every day in our public institutions to save the employer the expense of paying his labor enough wages so that, after paying his living expenses, he will have enough money left to pay his doctor. As the labor does not have to pay his doctor very little, there is no use giving him more pay. "Doc" is an easy mark, you know." We have taught him to be ethical. Why! When things begin to look bad around the plant we get the parson to make a social drive for "sweet charity," tuberculosis victims, etc., so "Doc" can study the real cause and try and find a cure—medical incompetency is appalling, you know. The employer's wife can take a European tour on the net profit from the performance. The solicitation of some of these employer's wives for "sweet charity" (saving their husband's pocketbook) is so great the daily press fill columns in describing the particular philanthropy.

The mediaeval system of camouflage, charity, is doomed in this country to a premature death. The modern physician understands economics too well for the employing class to try to put over this kind of a "bull." Labor does not want charity, but justice, full recompense for labor honestly performed—this includes the doctor. It is a disgrace to our civilization that any man should want, as our production is as many times greater than consumption. The law of supply and demand does not now operate as the profiteers raise or lower price, at will; otherwise might makes right. The medical profession has a right to protect itself and its interests. We are getting tired of being run for the other fellow's game. While I have never known of a doctor refusing medical assistance to one in distress and never expect to hear of one, it is his duty to his fellowman to see that he gets justice, as is his duty to himself and family to see that they are taken care of, it is his duty to his profession to co-operate with his confreres in running institutions, not for the benefit of the employer or some

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religious creed, but for the profession, so that the physician may have sufficient means to keep posted and advance the science of medicine.

How many medical students are going to spend a lifetime studying a profession which awards its members to the extent of an insurance solicitor's salary?

Let us co-operate for the benefit of the general public, not for a few profiteers, but for the good of the profession and our loved ones.

This movement has the indorsement of the medical societies of the State of New York, and New Jersey is about to follow suit. Strange our medical and lay press is so quiet. Why?

If somebody were to tell us that Hostetter's Bitters contained 25 per cent alcohol and that the daily dose of three ounces would, in a way, act as a substitute for the old Joy Stuff, now taboo, we would like to know if that body would be an accessory to, after or before the fact. To paraphrase Jim Whit Riley: "The inspector will get you, if you don't look out."

No wonder the osteopaths' patients get well quickly. From the sounds coming from their offices when they are giving treatment, we sometimes think their patients get well in self-defense.

Spirits of Camphor as a Preventive of Hay Fever and Asthma.

E. STUVER, M.D.,
Fort Collins, Colorado.

Every physician of any experience has probably been baffled in his efforts to ward off attacks of hay fever or asthma. In 1903 I attended a blacksmith suffering from a severe attack of asthma, to which disease he had been subject all his life; indeed, his first attack followed whooping cough when he was nine months old. This intractable disease has clung to him like a veritable "Old Man of the Sea" all his life (he will will be 57 years old in October, 1920), and has left its sinister signs stamped upon his whole appearance; he is bent (kyphotic), worn looking, and shows marked evidence of the struggle through which he has passed. He has tried all kinds of treatment from that prescribed by eminent specialists and general practitioners to the cults and sure cures that infest the by-ways of medicine, but nothing has given him more than temporary relief. He is a man of considerable intelligence and has been experimenting for many years to find something to give himself relief. A couple of years ago he began using a solution of carbolic acid, camphor and borax, applying it to the mucous membrance of the nose by means of an atomizer. Later he used spirits of camphor alone. His asthmatic attacks were always ushered in by hay fever symptoms such as sneezing, irritation of and discharge from the nose and also from the eyes at times. As soon as he felt these symptoms coming on he would pour some spirits of camphor in his hand, hold it to the nose and inhale freely—repeating several times if necessary to check the trouble. He tells me that he has done this for 18 months and during that time has not had an attack of asthma, whereas formerly he was an almost constant sufferer from this disease. He keeps one bottle of the spirits of camphor at his house and one at the shop and as soon as he feels the trouble coming on applies it freely. For many years I have been using an inhalant composed of 20 grains of menthol in an ounce of chloroform or alcohol and it gives great relief in many cases. The menthol added to spirits of camphor might do still better.

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PHILOSOPHY—
DECORATING WALLS.

About the very first thing that man did in his progress to civilization was to decorate walls, whether of his caves or houses. This was called mural decoration, from the Latin name for wall (*murus* or *muralis*). This mural decoration formed the record of written language and it was finally developed into painting and sculpture. The Gods, Kings, man and animals that were represented were marked by indented outlines and were colored. These outlines were often of such depth and the object that they circumscribed was so rounded and marked out in its leading parts that it formed a species of work intermediate between intaglio and bas-relief. Again we see an advance on this. The raised spaces between the figures are chiseled off and the figures themselves are tinted. By this a painted bas-relief was produced. The Assyrian architecture in museums exhibit this style of art carried to greater perfection. The person and things represented, though still barbarously colored, are carved out with more truth and greater detail. In the winged lions and bulls, that were used for the angles of stairways or gateways, we may see a considerable advance toward a completely sculptured figure, though this is still colored, and still forms part of the building. In Assyria the production of statue proper seems to have been seldom attempted, yet in

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Egypt and in Egyptian art we see the gradual separation of the sculptured figure from its wall, though we see the back of the statue united from head to foot with a block that stands in place of the original wall. Greece repeated the leading stages of this process. As in Egypt and in Assyria, the twin arts of painting and sculpture were at first united with each other and with their present architecture and were the aids of religion and government. On the freeze of Greek temples are colored bas-reliefs representing sacrifices, battles, processions, games, etc., all in some sort religious. On the pediments are painted sculptures more or less united with the tympanum and having for subjects the triumphs of Gods or heroes.

Even when we come to statues, they are definitely separated from buildings to which they pertain. We still find them colored and only in the later periods of Greek civilization does the definition of sculpture from painting appear to have become complete. In Grecian art we may clearly trace a parallel. All earlier paintings and sculptures throughout Europe were religious in subject. Christs, crucifixions, virgins, saints, holy families, apostles, etc.

The early sculptures, of the sort described, were colored and painted Madonnas and crucifixions are still abundant in the churches and on the highways. All of which show the fact that painting and sculpture continue in close connection with each other. And most close where they continue in closest connection with the parent architecture. Even after Grecian sculpture was pretty clearly differentiated from painting it was still religious and governmental in its subjects. It was used for tombs and churches and for statues of kings.

At the same time painting, when not purely ecclesiastical, was applied to the decoration of palaces and besides representing royal personages, was almost wholly devoted to secret legends. Only in recent times have painting and sculpture become entirely secular arts. Only within these few centuries has painting been divided into historical, landscape, marine, architectural, genre, animal, still-life, etc., and sculpture has grown heterogenous in respect to the variety of real and ideal subjects with which it occupies itself.

Strange as it seems, we find it no less true that all forms of written language, of painting and of sculpture have one common route in the politico-religious decorations of ancient temples and palaces. Between the painted window, the prayer book on which its light falls and the adjacent monument there is consanguinity. The effigies on our coins, the signs over our shops, the figures that fill every ledger, the coat of arms, the advertisements in the Western Medical Times, are in common with dolls, blue books and paper and ink, lineally descended from the crude sculptured paintings in which the Egyptians represented the triumphs and worship of their God-Kings. The modern picture or statue is of far more heterogenous nature than the ancient one. An Egyptian sculpture-fresco represents all its figures as on one plane and at the same distance from the eye. Our paintings represent them as at various distances from the eye. Theirs represent all objects as exposed to the same degree of light; ours represent different objects and different parts of each object as in different degrees of light. They use the primary colors, and these in full intensity; our paintings introduce primary colors, but sparingly employ an endless variety of intermediate tints, differing from the rest in quality and intensity. In those early works the same arrangement of figures is always reproduced, the same actions, the same dresses, the same attitudes and the same faces. In Egypt the modes of representation were so fixed that it was a sacrilege to introduce a novelty. It was only in consequence of this fixed mode of representation that

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a system of hieroglyphics became possible.

The Assyrian bas-reliefs display parallel characters. Deities, kings, attendants, winged figures, and animals are severally depicted in like positions, holding like implements, doing like things, and with the same expression, or rather, no expression of the face. If a palm grove is introduced, all the trees are of the same height, have the same number of leaves and are spaced equidistant. When water is animated, each wave is a counterpart of the rest and the fish almost always of one kind and evenly distributed over the surface. The beards of the kings, the gods and the winged figures are all alike, so are the manes of the lions and the horses. Hair is represented by one form of curl and the king's beard is built of compound tiers of uniform curls, alternating with twisted tiers placed in transverse direction and with perfect regularity, and the terminal tufts of bulls' tails are represented in exactly the same manner. Compared with the works of today, the change from the homogenous to the heterogenous is clearly manifested.

BOOK REVIEWS

NOTICE:—It will be the pleasure of the WESTERN MEDICAL TIMES to furnish any book, reviewed in this department, to its readers at the publisher's price, delivery prepaid. If any single order covers two books, the purchaser will be given in addition, a year's subscription to the WESTERN MEDICAL TIMES, providing the publisher's price for the two is $5. or more. If you desire any one of the books priced at $1., you may have it absolutely free if you will send us $2. to cover a subscription of one year for the TIMES. Address your orders to the Advertising Manager, 138 North Center Street, Reno Nevada.

DISEASES OF WOMEN. Including Abnormalities of Pregnancy, Labor, and Puerperum. A Clinical Study of Pathological Conditions Characteristic of the Five Periods of Woman's Life, Presented in One Hundred and Seventy-three Case Histories. By Charles M. Green, A. B., M. D., Professor of Obstetrics and Gynecology, Emeritus, in Harvard University, Senior Surgeon for Diseases of Women, Boston City Hospital, etc. 488 pages. with 12 full page plates, one cut and 25 charts in the text. Cloth. Boston: W. M. Leonard, Publisher, 1920.

While we have been told that the recital of case histories is almost, if not quite worthless, by some who would direct our destinies, it has always seemed to us that quite the reverse is true. With a good case history before us, such as Green gave us in the first edition of his book, and to which he has made additions in the second, now before us, we always feel that we are getting a more practical demonstration of the subject in hand—a something with a real basis of fact upon which to dwell. A consideration of a subject in this manner serves to omit much of a didactic nature and to give us the absolute facts regarding every phase of the subject. We see the patient, if we have any imagination whatsoever, and we follow the case from beginning to end and can really apply the knowledge gained to like cases coming under observation.

Green has a way of description which leaves but little to the imagination of his readers, for he paints his pictures with vividness. Not only is this true, but he shows a vast amount of common sense in the handling of his cases. He teaches conservatism, which is something of a relief in these days of radical measures.

The author verily carries us from the cradle to the grave in the arrangement of the book, as the sections have to do with infancy and childhood, puberty and adolescence, maturity, the climacteric and sanility. Under these headings he describes the various abnormalities peculiar to the various ages of woman. This book will be found of vast assistance to

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the general practitioner, for it will serve to give him a better understanding of many conditions which are his to treat and which do not go to the specialist.

SEX ATTRACTION. A lecture given at the Michigan tate Normal School. By Victor C. Vaughn, Sc. D., M. D., LL. D., Professor of Hygiene and Psyciological Chemistry, and Dean of the University of Michigan School of Medicine. 44 pages. Paper; price, 50 cents net. St. Louis: C. V. Mosby Company, Publishers, 1920.

We have read much about sex and sex attraction and the teaching of the young, that they might better protect themselves, but we do not remember where we have seen anything carrying as much real common sense, in connection with the subject, as does this short address by Doctor Vaughn. While the lecture is by a medical man, it is not addressed directly to others of the profession—though they might profit much by its reading—but was delivered with the idea of teaching teachers how best convey matter, regarding sex, to their pupils. Vaughn says there is too much prudery connected with the matter of human sex, and we agree with him. We allow our boys and girls to grow up in ignorance, in so far as we ourselves are concerned in their education relative to the subject, for you know "it isn't nice to talk about such things." Vaugh says girls become prostitutes because of their ignorance, and we know he tells the truth. Boys become rakes for the same reason, in many instances. The author also says there is absolutely no reason for the restricted district and we agree with him. These are only a few of the things he covers in his address. It is a little book which would not be misplaced were it put in the hands of every father and mother, as well as boys and girls who have reached the high school age. It might save many a heart ache, likewise many a ruined life. Though small in size, it is one of the biggest books we have read for a long time. And it is written by a man who does not make a fad of the sex subject, but who views it from a common-sense side, the side which will eventually do the most good for the most people. Read this little book—it will only take about half an hour of your time—then pass it along to your lay friends. If you do this you will be doing them a greater service than you can possibly dream.

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TUBERCULOSIS DEPARTMENT.

ROBERT C. KIRKWOOD, M.D., Editor.
Major, M.R.C. U.S. Army

Roentgenography—Interpretation and Value.*

LOUIS MARK, M.D.,
Superintendent Rocky Glen Sanatorium.
McConnellsville, Ohio.

Roentgenography is a study of different densities shown upon an X-ray plate. Substances of the same density, given the same length of exposure with the same type of tube will give the same density of shadow.

The method which I consider the best in the taking of stereoroentgenograms of the chest is as follows:

A uniform charge of between 60 and 70 kilovolts is used, with a Coolidge tube of a hardness between 60 and 65 miliampmeters.

Fourteen by seventeen-inch X-ray plates are used. The plates are loaded in double envelopes and placed in the carriage, with the fourteen-inch side of plate up and down and the film side toward the patient.

The patient is placed in a standing position in the center of plate No. 1, with the head turned to the left and the shoulders thrown as far forward as possible. A strap is placed around the patient to prevent any fine motion or unsteadiness of the chest during the taking of the picture. I consider the standing or sitting position the best possible way of taking stereoroentgenograms of the chest, because it permits the scapula to be thrown forward so that they lie upon the margin of the ribs and do not superimpose upon the lung shadow. When a stereoroentgenogram is taken with the patient lying upon his back, the shoulders are thrown backward and the scapula may be seen superimposed upon the lung shadow. This may cause doubt as to very small lesions situated at the periphery in this region.

The patient is instructed to take a deep breath, exhale, and then take a moderate breath and hold it. The first charge is then given, the time varying from one and one-fourth seconds to one and three-fourths seconds, depending upon the antereo-posterior thickness of the chest—the greater the thickness the longer the exposure. Plate No. 2 is then automatically slid into the position of No. 1 and the tube drops six centimeters, which is the distance between the eyes of the examiner, and the second charge of the same length of time is given. No. 1 plate is protected by a lead screen from the second exposure.

It is absolutely necessary that the patient hold his breath during the entire procedure, which lasts about four or five seconds, because the least amount of motion or the expansion or contraction of the lungs may produce false shadows or move the bronchial tree into such positions that it may produce shadows that appear to be bronchial thickenings or tuberculous shadows.

The plates are developed in the usual way, using a ten to twelve-minute developer, which will help to bring out the fine detail, and placed in the fixing bath for about fifteen minutes.

*Read at the Summer Course on Tuberculosis at the Ohio State Sanatorium, Mt. Vernon, Ohio, June 27, 1919.

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Fluoroscopy.

In the diagnosis of diseases of the chest the fluoroscope plays a very important part. In my opinion, the fluoroscope is not as good in early cases of tuberculosis as is the stereoroentgenogram, because the examiner must note the changes very hurriedly as the tube cannot be run over a very long period of time; whereas with a stereoroentgenogram you have a permanent record which you may study at leisure.

However, it may be used in the differentiation between a cavity and an anular shadow. If the shadow produced is a cavity, coughing will change the shape of this shadow very markedly; whereas, if it is due to air between the pleural linings or to a circular contraction of the bronchial tree, this change in coughing is not so marked or may be absent.

It may be used for the diagnosis of fluid in the chest. The cardiac impulses may be watched. It is a very valuable aid in the diagnosis of aneurysm. The motion of the diaphragm can be seen and also the different amount of expansion of the lung on either side.

Probably its greatest value in the treatment of tuberculous conditions is in the controlling of pneumothorax treatments. It is a very simple matter to watch the progress of a collapse of the lung after each injection, by a hurried fluoroscope examination.

The only disadvantage in using the fluoroscope in tuberculous conditions is that it leaves only a mental imprint, but no definite, permanent record such as an X-ray plate, which may be reviewed when needed.

The use of the fluoroscope is becoming more uniform as the knowledge of its use becomes greater.

Interpretation.

Before the interpretation of stereoroentgenograms can be undertaken, a normal chest shadow must be established. Without a norm the abnormal cannot be judged. X-ray shadows should be interpreted according to the normal lung as shown by post-mortem sections and injections.

To establish a norm you must go back to the hilus and the bronchial tree. The normal landmarks must also be known, their position and relation, and the position of the diaphragm. With a normal picture established, any variation from this may be judged as abnormal, and only in this way can the true value of X-ray readings be known.

The chest framework must be taken into consideration, as curvature of the spine or deformities of the chest would alter normal landmarks. It must also be remembered that the right lung has three lobes and the left lung has but two.

As a rule, the arch of the aorta is the most prominent landmark to go by, designating the left side, and is situated usually in the fifth interspace. The right hilus is larger than the left and is situated slightly higher than the left. The right diaphragm is higher than the left. The heart, when in normal position, should show the right cardiac border slightly rounded and about three-quarters of an inch to the right of the vertebral column, the apex of the heart being to the left. In a great number of X-ray plates the trachea may be traced to its biforcation, extending along the vertebral column, the right branch extending almost straight downward, the left bronchus disappearing due to the fact that it normally runs underneath the arch of the aorta.

The most important thing upon which the reading of X-ray plates is based is the normal bronchial tree. This normal bronchial tree has been proven by post-mortems and X-ray upon both tuberculous and non-tuberculous cases. The branches of both upper lobes and the middle lobe on the right side are constant unless distorted due to contraction of the lung or pleura. The trunks to the base have never been normally established except the main stem bronchus.

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Leaving the hilus and extending towards the upper lobe is a heavy trunk which is very short and is called the upper lobe trunk. This divides into three branches; one branch extends straight upward along the vertebral column and subdivides to form an anterior and posterior branch. This trunk leads to the extreme apex, both anteriorly and posteriorly and is called the vertebral trunk. The second branch extends anteriorly towards the first interspace and is called the first interspace trunk. The first interspace trunk divides to form an anterior and posterior branch, the anterior branch leading toward the first rib and the posterior branch leading toward the third and fourth interspace posteriorly about 3 or 4 inches from the vertebral column. The lowest branch is called the second interspace trunk and extends toward the second interspace, dividing to form an anterior and posterior branch, the posterior branch leading toward the fourth and fifth interspace. The anterior branch may again divide and extend toward the third interspace. This branch is not always present.

The vertebral, first and second interspace trunks constitute the branches to the upper lobe, both sides. The terminal endings and small branches of these trunks are called the linear markings and in a normal condition are not seen at all times and when seen are not interwoven and do not reach the periphery. When these linear markings reach the periphery they are considered normal.

The middle lobe trunk on the right side leaves the hilus about one and one-half inches below the upper lobe trunks. This trunk extends antro-laterally and has anterior and posterior divisions before it divides into the terminal bronchi or linear markings.

The trunks to the base are usually heavier on the right side than on the left. There is one large main stem bronchus which extends almost straight downward. The heart shadow on the left may be superimposed upon the trunks to the base so that they may be only faintly seen. A normal number, with direction and position, has not been established for the trunks to the base. It is the lack of absolute definite norm at the base that makes the reading of abnormal conditions difficult in this region.

Having established a norm upon which to base a differential diagnosis, the next thing to consider is where the pathological condition is located, if one should be present. A change in the hilus shadow has been the cause of considerable investigation and to date the consensus of opinion seems to be that one cannot read tuberculosis from a hilus change. A peri-bronchial thickening does not always mean a tuberculous condition. Knowing that the normal bronchial tree does not reach the periphery, any condition which shows markings reaching the periphery should be considered abnormal.

Early tuberculosis is usually peripheral, and it is upon the peripheral changes shown by a stereoroentgenogram that early tuberculosis must be diagnosed. The early tubercle, starting at the biforcation of a terminal bronchus and spreading along the lympathics towards the pleura, will cause a thickening which is triangular in shape and which has the apex towards the hilus and the base towards the periphery. This is what is termed Dunham's fan or triangle. There is no other condition other than tuberculosis that will give such a characteristic shadow upon an X-ray plate.

As the tuberculosis spreads, the fan may increase in size, causing a spreading along the other trunks forming new fans or triangles; and in this way several distinct peripheral fans may be seen, of different density, suggesting that one is older than the others. When the condition spreads so that the entire lobe may be involved, this fan-shaped appearance may be obliterated. This triangular

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formation at the periphery is absolutely characteristic of early tuberculosis.

If the lesion shows a tendency towards fibrosis, a heavy cloudiness forms between the linear markings or the margin of the triangle, causing a contraction, and when this appears very small and narrow, suggests a healed lesion. This triangular formation of early tuberculous lesions has been definitely proven by Dunham by serial sectionings, checked by X-ray work.

Pathological changes that are peripheral but do not show a characteristic triangular formation cannot be positively diagnosed as early tuberculosis. Thickening of the bronchial tree, which does not cause peripheral changes or changes in the hilus such as enlarged glands or a thickening of the hilus, may or may not be tuberculous. These changes may be due to other infections such as strepto coccus, staphylococcus, pneumococcus, spirocheta pallida, or to cardio-vascular changes. Before a differential diagnosis can positively be made, the physical examination and other tests must be taken into consideration. Cases which are further advanced than early changes are, as a rule, easily diagnosed.

Differential Diagnosis.

There are several conditions causing changes in the X-ray shadow which must be differentiated from tuberculosis, and there are conditions which are present along with tuberculosis that may be recognized from the X-ray plate but which cannot be determined by any other means. Some of the conditions from which tuberculosis must be differentiated are bronchiectasis, peri-bronchial thickening, luetic infection, carcinoma, media stinal changes, pleurisy with effusion, lung abscess, pneumonia, and infarct.

Bronchiactasis will usually show a marked dilatation of the main stem bronchus to the base, with suggestive areas of localized bronchial thickening, and with the aid of the physical examination, history and other laboratory methods, a differential diagnosis may be made.

Without the other methods of diagnosis, the X-ray will not definitely decide as to whether peri-bronchial thickening is tuberculous or due to some other condition. However, it will help to decide whether there are peripheral changes.

A number of cases diagnosed as tuberculous from history and physical examination do not show characteristic tuberculous markings upon the X-ray plate, but may show irregular stellate scars, with a probable interlobar pleurisy, which definitely shows that it is not tuberculosis but some other pathological condition, and the Wasserman reaction in these cases will usually prove strongly positive, so that a diagnosis of syphilis may be made.

Media-stinal changes such as aneurysm, enlarged glands, or tumors may not always suggest a positive diagnosis, but a definite conclusion may be made that the condition is not tuberculous but that the pathological change is in the media-stinum and not in the lungs.

The irregular shadows of a carcinoma are entirely different from those of tuberculosis, and with the history of the case one may be able to arrive at a definite diagnosis.

Pleural effusion which may not show tuberculous lung changes will very clearly be shown upon the X-ray plate as a heavy white density with a straight or very slightly curved margin situated at the extreme base when the X-ray picture was taken with the patient in a standing or sitting position.

A heavy density, usually circular in outline with no characteristic markings of a tuberculous nature, will usually suggest an abscess which, if situated close to the periphery, may be easily detected by physical examination. The history of the case, along with the X-ray examination, may definitely decide the diagnosis.

Pneumonia and infarct will give

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heavy white shadows which may be triangular or may involve an entire lobe. The shadow appears very flat. The lung markings, as a rule, cannot be made out.

A differentiation of all conditions may not always be definitely made, but in doubtful cases a negative conclusion as to certain chest conditions may be very valuable. Certain shadows may suggest a possible diagnosis which when checked by other methods may lead to some conclusion.

Value

A physician who does any amount of chest work knows the very great value of a stereoscopic X-ray examination of the chest. In the differentiation of chest shadows a flat plate may be of value when the condition is of far advanced tuberculosis or when fluid is present. But when early tuberculosis must be diagnosed, a lesion cannot be definitely ascertained as to whether it is peripheral or merely a peri-bronchial change. There may be other early conditions which can be shown by a stereoscopic view and not by single plates. This has been very thoroughly demonstrated by the chest X-ray men doing army work.

It is not the duty of the X-ray man to make a positive diagnosis in all cases. If the X-ray examiner can state whether a pathological condition exists or does not exist and, if one should be present, can state the location of such a change, the other methods of diangosis which are available should be able to make a differential diagnosis. The X-ray is not conclusive in all conditions, any more than are other laboratory methods or even the physical examination. Because a laboratory method is not conclusive in all conditions but only corroberative, does not mean that this method is of no value. This holds true with the X-ray examination. It is not always final and conclusive, especially in early tuberculosis, but when checked up with the physical examination and with other laboratory methods will, as a rule, aid in cinching a diagnosis.

The value of the X-ray examination is clearly shown by the number of cavities shown upon the plates which are not detected by very careful physical examinations by competent men. Interlobar pleurisy, which has no means of detection by physical examination, is very easily shown upon the X-ray plate. Distortions of the media stinal viscera, adhesions of the diaphragm, and contractions of the lung cannot be made out except by an X-ray examination.

A differentiation between active and inactive lesions cannot always be made. from the X-ray plate. When a triangular shadow appears to be very much contracted it suggests a healed lesion, but when the shadow has a marked flakey or mottled appearance the lesion suggests activity. It should be the duty of the man making the physical examination to decide as to whether a lesion is active or inactive, after the roentgenologist has pointed out the location of the lesion.

The X-ray has its greatest value when checked by physical examination and by other laboratory methods. After an X-ray examination has been made and the exact location of the pathological lesions has been established, the chest should again be examined over each of the areas where these lesions are situated to decide the amount of activity, the tendency towards fibrosis, and the changes that may be inactive. When this has been done for a considerable length of time the examiner will soon be able to determine the value of certain physical signs as compared with the X-ray shadows.

In order that the stereoscopic X-ray plates of the chest may attain their greatest value, a uniform standard of a normal shadow must be established upon which a differential diagnosis of pathological lesions may be based, and this standard must be used by all interpreters so that if X-ray pictures are taken by different men, of the same case, or if the same plate is read by different men, the readings should be uniform. Until this has been established there will

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always be a great deal of dispute as to the exact value of a stereoscopic X-ray examination, because different men will give different interpretations of the same condition. Even though a normal standard of reading plates has not been established, still the use of stereoscopic plates is increasing daily and the medical profession in general are making more use of this very valuable aid in the differentiation of abnormal chest conditions.

Coolidge tube X-ray treatments have been used and are being used today in the treatment of tuberculous joints, bones, bladder, and glands. Several men have reported good results in the use of the X-ray in pulmonary tuberculosis, but no definite proof has ever been given as to its results. There is no doubt that the X-ray gives excellent results in glandular tuberculosis and in many cases of bone and bladder tuberculosis, still the results obtained by competent men in the use of the X-ray in tuberculosis of the chest does not warrant its general use. The theory upon which the men who use the X-ray in pulmonary tuberculosis base its value is very good, namely, the rise in lymphocytes in the blood, increasing the resistance; but the results have not been up to the probable expectation. When rest, fresh air and the like fail to produce the desired results in a given case, then the X-ray may be tried as a possible aid. It is not a "cure-all" as claimed by some men, and should be used very guardedly.

DEPARTMENT OF NURSING.

E. MILDRED DAVIS, A.B., R.N., Editor.
Superintendent Bayonne Hospital and Dispensary, Bayonne, New Jersey.

MORE JOBS THAN NURSES. (*Abstracted from "The American Journal of Nursing," June,* 1920.)

Records from the Atlantic Division of the Red Cross Bureau of Information for Nurses show that there were 263 vacancies to be filled between January 1 and March 1. Applications were received from 181 nurses, and positions found for every applicant.

THE MARCH OF THE RED CROSS. A GLIMPSE FROM THE WATCH TOWER AT WASHINGTON. (*Abstracted from the Red Cross Magazine, June,* 1920.)

Eighteen months have elapsed since the signing of the armistice. An efficient, well-supported Red Cross organization is needed today.

To headquarters in Washington come reports of tornadoes in the Middle West and Southern States; an epidemic of blindness in China; appalling conditions in Vienna and Central Europe, Constantinople and Asia Minor; Russian refugees pouring into Belgrade, Roumania, and the northern Balkan states by the thousands.

The Red Cross Chapter in Constantinople has appropriated $50,000.00 to provide for refugees. Some headway is being made in relieving deplorable conditions in South Russia and Serbia.

In Vienna an epidemic of influenza is in progress. One hundred and eighty thousand school children are suffering from the scarcity of food.

The Red Cross doctors have been hampered by lack of medicine and supplies for the sick.

More than 90,000 people have received aid; over sixty hospitals have been given emergency supplies; and drugs dispensed until the supply was exhausted.

Severe tornadoes in the Middle Western and Southern States have demolished towns and villages. In every instance Red Cross workers have been sent to relieve the injured and homeless victims.

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No. 5

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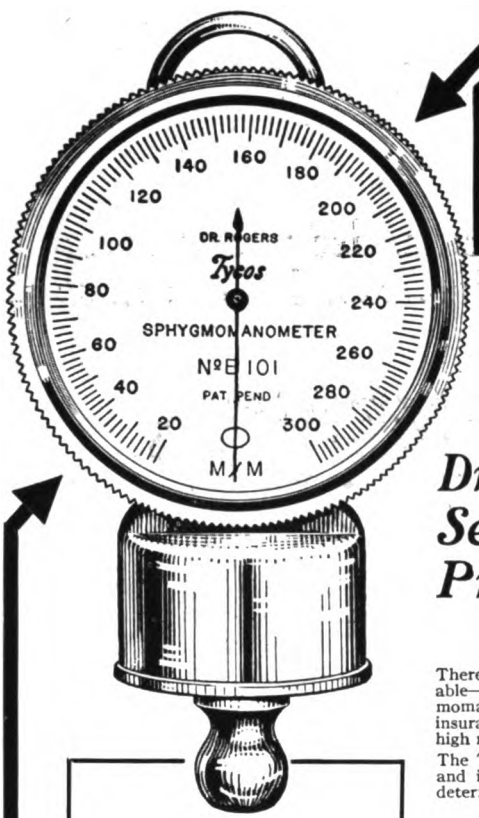

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aid and emergency work in numerous localities.

Corning, N. Y., is maintaining an emergency hospital of 50 beds, ready for use in the city, or outlying sections.

In Hood River county a First Aid kit has been equipped in every school and railroad station.

In St. Louis a public health program has been inaugurated, which consists of five definite divisions: nursing, child welfare, social service, tuberculosis and recreation. A training school for public health nurses was required. This was established. The first class has graduated, and its members are distributed throughout the districts.

A shipment was recently made to Vladivostok, consisting of 17,500 cases of relief material valued at two and one-half millions of dollars.

A complete system of bus lines has now been organized to all of the American cemeteries along the old battle lines in Northern France. The majority were inaccessible by train.

The Red Cross idea is illustrated wherever the visiting nurses are maintained; wherever community houses are under construction, Juniors are at work; ehild welfare campaigns are being conducted and many problems of Home Service workers are being solved.

OUR SOUTH AMERICAN NEIGHBORS. (*Abstracted from "The Trained Nurse and Hospital Review."*

The hospital conditions of South America are immeasurably more difficult to improve than those of India, Africa or China.

Hospitals in South America have existed for half a century. Their outward appearance is attractive. It is more difficult to change their methods and customs than to establish and organize a hospital from the beginning.

The British hospitals did not respond promptly to the teachings of Florence Nightingale.

American and British nurses who go to South America will require a large stock of patience, courage and perseverance in order to insure visible improvement.

There are efficient doctors in South America, and contagious diseases are well controlled in many of the large cities, but everywhere the greatest need of all seemed to be that of trained nursing service. All other medical and sanitary work is handicapped without it.

(*Abstracted from "The Canadian Nurse and Hospital Review."*

A Chinese hospital of twenty-five beds is about to be established in Montreal. This is the first Oriental hospital in Canada. A temporary substitute of ten beds is already in operation.

A COURSE IN PUBLIC HEALTH.—Nursing has recently been established at Dalhousie University. Several nursing sisters who have been released from army service, and other representative Canadian nurses, are enrolled among the students.

THE VALUE OF A NURSE'S TRAINING. FROM A PUPIL NURSE'S VIEWPOINT. (*Abstracted from "The Pacific Coast Journal of Nursing."*)

There are many professions that develop the character of a person. Hospital training develops a sense of responsibility and self-reliance. We learn to think and act for ourselves. The timid girl who is afraid to approach a sick room, or faints at the sight of a wound, becomes (in three years) a woman with self-confidence and dignity. She comes in contact with every type of personality and must adapt herself accordingly. The repression of her own individuality is discipline in itself. Mental development is quite as important as the physical training. A person may learn more things of vital interest in nursing than she can learn in the same length of time as a student of any other profession. Nearly everything she learns is new, and intensely interesting, from the prepara-

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tion of an appetizing tray, the bandaging of an injured finger to surgical nursing and the study of various diseases. Nursing offers a means of self-support such as few other professions offer and the opportunity for service, which is greater than anything else to be considered.

NEW METHOD OF SUN TREATMENT PROVES THERAPEUTIC AID. (*Abstracted from "The Modern Hospital," June,* 1920.)

A new method of employing the rays of the sun for therapeutic purposes has been practiced in France, and is now being applied at the Children's Hospital in Boston.

The rays of the sun are intensified through large, double, convex lenses, and concentrated directly upon wounds, tuberculous and infected joints and other local infections. The results of this treatment have been very successful.

On page 1301, of the J. A. M. A., of May 8, 1920, an author says: "With the mass of the chronic infections of the war, the aim of the Carrel-Dakin treatment—the early closure of wounds—has not been attained. Few of the soft tissue wounds, and I dare say less than 1 per cent of the thousands of bone infections, returned from overseas, have been brought to an aseptic suture. Despite the widespread use of surgical solution of chlorinated lime (Dakin's solution) and the presence of medical officers especially trained in its use, some of our large army hospitals could not up to May 1, 1919, show even a single case of aseptic operative closure of osteomyelitis."

How are we to be consoled after reading the above excerpt? Both editorially and otherwise, the J. A. M. A. preached the Carrel-Dakin wound treatment, in time and out, and despite the fact that surgeons, other than Carrel, were pointing out many fallacies in that treatment. We do not see any editorial retractions in this connection, a thing which would have been fair to all concerned. No matter how much a treatment may have been lauded, it would seem to us, were it found fallacious, a retraction, or, at the very least, a correction should appear. The Carrel-Dakin treatment undoubtedly has its uses, but those, in so far as we have been able to discover, are rather limited. We are living in hopes that some time, when discovering a wrong of this sort, the editors of the J. A. M. A. will set us right.

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129 East 35th St.,
New York, June 24th, 1920.

To Editor Western Medical Times.

Sir:—The editorial in June issue of your journal, "Laboratory vs. Patient," in my judgment, could not be improved.

Would that it had the widest circulation where it would be most valuable! It is greatly needed at present, so that wise counsel may prevail. Today, it is simply deplorable, to see so many patients who have been practically terrorized and made incurable neurasthenics, because of narrow-minded, wrong teaching.

If the younger generation of physicians could only be made to learn that their new laboratory acquirement is ephemeral, but that the knowledge of their elders, fruit of life-long clinical observation and experience is lasting and important, it would be an immense boon to suffering men and women.

BEVERLY ROBINSON, M. D.

The only strike that interests us—that of the clock at mealtime.

STILL THERE ARE OPPORTUNITIES.

Largely as a result of our devitalized therapeutics C. Science, the pathies, practers, isms and ists have captured over one-half of our erstwhile practice. Now the Episcopalians are after another fraction. There is quite a chunk left—who's next?—*Exchange.*

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Mixed Vaccines

THE VITAL STATISTICS OF THE ARMY, as well as agglutinin and bactericidal experiments, have established.

FIRST—That vaccination against Typhoid only does not protect against Paratyphoid "A" or "B", but that it does protect against Typhoid.

SECOND.—That vaccination against Paratyphoid "A" protects against that infection but does not protect against Typhoid or Paratyphoid "B".

THIRD.—That vaccination against Paratyphoid "B" likewise protects against that infection only.

FOURTH.—That vaccination against all three infections does definitely protect against all three.

FIFTH.—**That the protection** conferred **and the results of agglutination** tests, **are identically the same whether the individual is immunized against each organism separately** or **whether the vaccines are given in combination.**

SIXTH.—That the "Non-Specific-Reaction" of Typhoid vaccination is of no avail as a protection against the closely allied Paratyphoid infections.

Of course it is not always safe to reason from analogy. On the other hand is it not well to preserve the open mind and consider if there may not be merit in combinations of vaccines other than Typhoid-Paratyphoid, even though the immunizing response is less distinct and of shorter duration?

Paracelsus, Harvey, Jenner, Pasteur, all were men of "the open mind". They broke down the barriers set by authority in their times, and it seems to us a sad return to old traditions to insist that only those things which have the seal of official, or quasi-official, approval may ethically be included in the physician's armamentarium.

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